3.4.8 South Atlantic Region

Participants in the South Atlantic region workshop emphasized interest areas related to the identification and location of deep corals and their interaction with ocean currents and fish habitats. The group discussed the expansion of fisheries exploration including the mapping and inventory of fisheries in the Gulf Stream. Other important geographic targets identified as needing further exploration included wide areas of unknown underwater features near the boundaries of the continental shelf, including the canyons of the Bahamas Banks and South Atlantic Bight.

The participants had significant interest in documenting wrecks and other cultural resources with the intent of blending archeological missions with other exploration activities.

An improved process for managing exploration data was a topic of significant discussion, particularly related to the life cycle processes for collecting, storing, and accessing these data. Participants shared ideas for workable processes that could satisfy the outreach needs of the OE program while recognizing the needs of the principal investigator for processing, analyzing, and publishing results of collected data.

Results of the South Atlantic region workshop are provided in Table 3-10. Exploration targets of interest nominated by participants are illustrated in Figure 3-10.

Table 3-10. South Atlantic Region Workshop Results

South Atlantic Workshop	
Standard Package: Class I/II Vessel with acoustic mapping (multibeam; sidescan); Dive capability (ROV/AUV/Subs) with imagery/video and sampling equip; Precise positioning equipment; Real-time information transfer (video; email; web); GIS; Bottom samplers; Grab samplers; Water column sampling - rosettes; CTD; Plankton sampling; Fish sampling - **Standard Package 1**: Class I/II Vessel with acoustic mapping; Dive capability (ROV/AUV/ Submersible) with imagery/video and sampling equipment; Precise positioning system; Magnetometer; Sidescan; Sub-Bottom profiler; Flow thru system; **Standard Package 2:** NR1 submarine-like vessel; **Standard Package 3:** Mobile habitats	**Standard Partners:** Universities; USGS; State Departments of Natural Resources; NMFS; NOAA sanctuaries; Sea Grant; NOS; MMS; WHOI; HBOI; NASA; NSF; ONR; Space Grant; COSEE; OE; Army Corps of Engineers; Aquariums; Museums; Archaeologists; National Park Service; Navy; States; State Historic Preservation Office (SHIPO); Industry; Media; Educators; NESDIS

South Atlantic Workshop Results						
ID	**Category**	**Information Need/Gap**	**What**	**Where**	**Enabling Technologies**	**Partners**
305	Archeology	Submerged cultural resources	Document status of wrecks; recently uncovered by storms; etc. using systematic surveys or target submersible historical shipping lanes; sites know in historical records; sub-bottom formation identification of targets; consistent survey of coastline areas out to EEZ	Hatteras to Keys; USVI	Standard Package; AUVs; photo mosaics; video imagery; multibeam; sidescan sonar; magnetometer; airborne LIDAR; integrating sensing collection systems and positioning system; real-time video linked to shore	Standard Partners
325	Corals - Deep water	Deep sea coral mounts (oculina and lophilia)	Map associated fauna; area; extent; size of mounds; new species	400-600m depths; Blake Plateau - Cape Fear to Bahamas	Subs; sonar; sampling technology	Standard Partners
306	Currents & Water Masses	Mapping currents and eddies and their connection to vertical and horizontal components	ID circulation; temperature discontinuities; current velocities; pH levels	Gulf Stream to inlets	Satellites for SST; drifters; buoys; ADCP; AUVs	Standard Partners

South Atlantic Workshop Results						
ID	**Category**	**Information Need/Gap**	**What**	**Where**	**Enabling Technologies**	**Partners**
324	Currents & Water Masses	Exploring Gulf Stream and Florida Gulf Current	ID; characterize; map; habitat assessment/map; nutrient cycling; life history/reproductive biology/evolution of life history strategies of fishes; moored current meters at multiple depths; sediment traps; release drifters regularly from position on the sea floor and use satellites to track them; release drifters regularly from position on the sea floor and use satellites to track them	Blake Plateau - deep; under Gulf Stream/Florida Current; lots of new species found there; difficult access; Portalles Terrace - lots of fish habitat; unexplored regions; other significant deep regions in Florida Straits; Miami Terrace;	Standard package; high current subs; ROV's; side scan; multibeam; seismic tech; ADCP; moored instruments; sediment traps; neutrally buoyant sediment traps; New technology: develop baited fishing gear - automatic release fishing gear such as magnesium links that dissolve - needs to get to bottom quickly and do it's job of fishing or photographing and then pops up to the surface when done; AVHRR (SST); SeaWIFS (ocean color); satellites	Standard Partners; NWS (especially moored); recreation community; fishing; boat industry
319	Ecosystem - Banks & Basins	Bahama Banks	Explore mechanisms behind whiting events; sea level studies; geology; karst studies; low standing reefs; archeology - shipwrecks; reef studies; coral bleaching; carbonate production; reef sampling/coring for sea level and paleoclimate studies; highly migratory species; fisheries oceanography; many habitats to observe different regions; using ships; satellites; satellite based; remote sensing; satellite telemetry; critter behavior; sea level data; sediment traps; water column sampling	Tongue of the ocean (TOTO); Florida Straits; Exumas (island chain)	Standard Package; coring; sediment traps; water column sampling; 3-D seismic; LIDAR; cameras; ABLOS (a boat load of stuff); SCUBA; Aquarius and other habitats; remote sensing	Standard Partners; CMRC Caribbean Marine Research Center (CMRC) at Lee Stocking Island; San Salvador; education partners; Bahamas government
316	Ecosystem - Canyons	Explore canyons and holes	Map; characterize; ID; turbidity transport; mineral exploration; gas and groundwater seeps	Hatteras; Carolina sea trough; Desoto canyon; the Point off Cape Hatteras; Red Snapper Sink Hole - off Jacksonville	Standard Package; subs; tech diving; sonar; seismic; sidescan; multibeam bathymetry	Standard Partners
308	Ecosystem - Extreme Environments - Vents, Seeps, & Volcanoes	Map dead and living muscle & clam communities associated with seeps	Compare with subsurface; ID survey	Blake Ridge	multibeam; coring; sub; gas hydrate sensors	Standard Partners

South Atlantic Workshop Results						
ID	**Category**	**Information Need/Gap**	**What**	**Where**	**Enabling Technologies**	**Partners**
341	Ecosystem - Extreme Environments - Vents, Seeps, & Volcanoes	Heat flow measurements	Heat flow measurements on the ocean floor extending hundreds of kilometers normal to, and on either side of, rapidly spreading ridge axes (or hot spots)	Ocean wide near spreading ridge axes or hot spots		
303	Ecosystem - General	Primary & secondary fish production; understanding geochemical processes	Collect water column; physical data; use satellite imagery; collection of mid/bottom biologics; net and bottom sampling; connecting bio/chem/geo technologies and processes; eddy processes; ID drivers of production; Lagrangian perspective; food web	Charleston Gyre	CTD; automated sensors; automated ship - compiling/integrating; management of data; real-time continuous data collection; "conducting cable"; collecting satellite data - SST; SeaWiFS; ARGOS; transmit broadband data; multidisciplinary ship time; drifters	Standard Partners
304	Ecosystem - Shorelines to Ledges	Connectivity of habitats on shelf and edge of shelf; trophodynamic study	ID connected habitats; extent of spawning areas; inventory of habitats and communities; connection between reefs; sample; determine source; track history of fish; follow biologics to determine behavior; tagging studies; molecular data analysis	Marine Protected Areas; Hatteras to Texas	Spectral technologies; PSATS/conventional tagging; chemical tools	Standard Partners
315	Ecosystem - Shorelines to Ledges	Inner shelf	Surficial geology; bathymetry; sediment distribution; biota; habitat distribution; potential fish habitats; groundwater discharge; relationships between biology and geology; physical oceanography - water mass characteristics; invasive species; harmful algal blooms	Grays Reef; Georgia coast; Florida coast; SE NC coast least studied; SC coast	Standard Package	Standard Partners
318	Ecosystem - Shorelines to Ledges	The Point	Extend baseline info; why is it so productive?; map	Just off Cape Hatteras	Subs; mapping; sediment traps	Standard Partners

South Atlantic Workshop Results						
ID	**Category**	**Information Need/Gap**	**What**	**Where**	**Enabling Technologies**	**Partners**
302	Ecosystem - Slopes	Shelf to slope transition area; complex habitats - reefs (outer shelf), deep coral banks, canyons	Survey bottom; physical sampling of water column dynamics; biological survey; sampling structural data; describing wreck structure; wood samples from wrecks; corrosion analysis; sampling substrates; subsurface geology; site stabilization; covering and uncovering of wrecks; observe new species; species interactions/behavior; habitat utilization; network of sensors; multidiscipline surveys; fisheries; ID community structures; (Assume already have good bathymetric data); characterize content of entire water column (*planned comprehensive surveys); *staged multiyear plan ; generate time line	Hatteras to Texas	Standard Package; magnetometer; sidescan; sub-bottom profiler; flow thru system; HDTV; subs in strong currents; remote sensing of Gulf Stream; HDTV cameras; photo mosaic; multiple cameras/sensors - fiber optic technology	Standard Partners
317	Ecosystem - Slopes	Explore shelf break - upper slope	Mapping; characterize; ID; intercomparisons; moored arrays; satellite; airborne; LIDAR; drifters; shelf edge; reefs; hard bottoms; paleoshorelines; spawning locations; sand resources; sediment traps; broad based exploration survey; expansion of MARMAP monitoring (fisheries monitoring program funded by NMFS to SC); habitat based observation; turbidity transport; mineral exploration; gas and groundwater seeps; dedicated estuarine coastal vessel for education and training of next generation of oceanographers to establish monitoring program of data and sample collection - potentially re-outfit Ferrell for this purpose	S. Atlantic Bight; oculina banks; compare among . . .Cape Canaveral; Hatteras Slope; S.Carolina-Georgia border	Standard Package; habitat; SCUBA; moored (similar to LEO); ROV observation satellite; airborne; sediment traps; coring; Mochness; seismic; subs; tech diving; ROV's; AUV's; moored arrays; multibeam; sidescan; seismic; chirp sonar	Standard Partners; oil industry; ocean tech companies; military
314	Geology & Geomorphology	Mapping paleoshorelines and relict reefs (tend to be fish habitats)	Map; ID; characterize; develop baselines for geology; biology; water quality	Reefs; W. Florida shelf; Keys; shorelines everywhere - shelf edge; Bahamas	Standard Package; bottom sampling; multibeam; subs; side scan; seismic tech; chirp sonar	Standard Partners

South Atlantic Workshop Results						
ID	**Category**	**Information Need/Gap**	**What**	**Where**	**Enabling Technologies**	**Partners**
321	Marine Conservation	South Atlantic Fishery Management Council (SAFMC)	Map; ID; characterize; develop baselines for geology; biology; water quality; determining potential recreational interests; oceanographic parameters; putting areas on map for proposed marine reserve areas - politically driven; need to explore these regions to ID whether these are appropriate reserve areas biologically; ecologically; etc.	SAFMC has maps; deeper ones off N. and S. Carolina; Georgia; Florida; Gulf of Mexico	Multi-beam; AUV; ROV; subs; tech diving; permanently mounted instrument arrays	Standard Partners
322	Marine Conservation	Recruitment and spillover mechanisms in MPA networks	Oceanographic parameters/processes; info on spawning; eggs; larvae spillover and transport mechanisms; behavior of early life history stages that effect recruitment	Region-wide; spawning locations; paleoshoreline ridges such as Pulley Ridge; Dry Tortugas; Marine Protected Area's and adjacent areas; Charleston Bump	Nanotechnology; AUV (WHOI); multibeam; subs; satellite tags on spawning fish; drifters; moored arrays	Standard Partners
323	Marine Conservation	Oculina Banks	What is effect of closure?; 10 yr limit on no fishing; ID; characterize recruitment and spillover mechanisms; artificial reef impact; comparison with existing baseline studies	S. Atlantic Bight	Subs; ROV's; tech diving; multibeam; moored arrays; sidescan sonar; chirp	Standard Partners
330	Marine Microorganisms	Chemosynthetic communities	Subsurface - down several km; oil seeps and vent communities; inventory and characterize; isolated ridge system; new biota; larger geographic context	Blake Ridge; Gulf of Mexico	Standard Package; multibeam; geophysical techniques; sampling techniques; satellite imaging; towed vehicles; subs; AUV's; look at new technologies	Standard Partners
320	Marine Organisms	Expanding fisheries (exploitation of new species)	Establish fishery dependent sampling & fishery independent sampling baseline information such as growth rates; reproduction; etc.; getting samples from landings reproduction; etc.; conducting independent surveys to get better estimates of abundance; life history; reproduction; growth rates; all base-line information; education effort	Opportunistic; region-wide	Standard Package; baited traps; trawling; standard package; Mochness	Standard partners; SAFMC; industry associations such as Coastal Conservation Association and other sport fishing clubs; commercial fishing associations; Reef Environmental Education Foundation (REEF); Professional Association of Diving Instructors (PADI); NMFS

South Atlantic Workshop Results						
ID	**Category**	**Information Need/Gap**	**What**	**Where**	**Enabling Technologies**	**Partners**
327	Marine Organisms	Seasonality of upwelling and associated spawning and larval distribution	Map locations of upwelling and gyres; measure productivity; sample plankton; measure vertical flux to sea floor; physical/chemical water column characteristics	N. of Cape Canaveral; N. of Charleston Bump - semi-permanent gyres; also smaller ones but don't know much about them - unknown areas	Data buoys; moored arrays; satellite; plankton sampling; sediment traps; standard oceanographic sampling - CTD; ADCP; fluorometry	Standard Partners
328	Ocean Resources - Bioprospecting	Bioprospecting	Charleston Bump (mg); Blake Plateau (gas hydrates; sand); inner shelf; collect samples of marine organisms; water samples; sediment samples; collect DNA from marine organisms	Any of regions/projects stated above - opportunistic	Standard Package; Rock dredging; sand collecting tech; standard package; seismic; sub-bottom profilers; bioprospecting tools; subs; ROV's; low tech shipboard sampling such as trawls and dredges; genomic tech; molecular tech	Standard partners; biotech; Centers for Disease Control (CDC); local governments
307	Ocean Resources - Energy & Minerals	Discovery of deep sea minerals, deep sea biota	Surveys - subsurface; ocean drilling programs	Blake Plateau	Standard Package	Standard Partners
329	Ocean Resources - Energy & Minerals	Mineral prospecting	Charleston Bump (mg); Blake Plateau (gas hydrates; sand); inner shelf; manganese nodules; phosphorites; gas hydrates; sand resources for beach nourishment; heavy metals	Near-shore regions; Region-wide; off Hatteras; Charleston Bump; Blake Plateau; Blake Ridge	Standard Package; multibeam; chirp sonar; seismic; ROV's; subs; bottom sampling; corers; grabs; dredges; side scan; rock dredging; sand collecting tech; seismic; sub-bottom profilers; bioprospecting tools	Standard partners; biotech; CDC; local governments
326	Pelagic Environment	Shelf-wide water column oceanographic studies (physical, biological, chemical)	What causes harmful algal blooms; circulation; nutrient distributions; nutrient flux; mixing; recruitment dynamics; jellyfish (sea nettles); water column sampling; time-series monitoring and collecting water samples; monitor as event occurs	Region-wide; N. Carolina; Onslow Bay	Standard Package; moored arrays; upgrading and expanding the SABSOON network; ADCP; permanently moored data buoys; drifting sediment traps (vertex style); satellite imagery; drifters; general oceanographic sampling - CTD; ADP; water sampling	Standard Partners

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Atlantic South Region Exploration Targets of Interest

1. Bermuda
2. Blake Plateau
3. Blake Ridge
4. Cape Canaveral
5. Cape Hatteras
6. Charleston Bump
7. Charleston Gyre
8. Grays Reef
9. Hatteras Slope
10. Onslow Bay
11. Red Snapper Sink
12. South Atlantic Bight

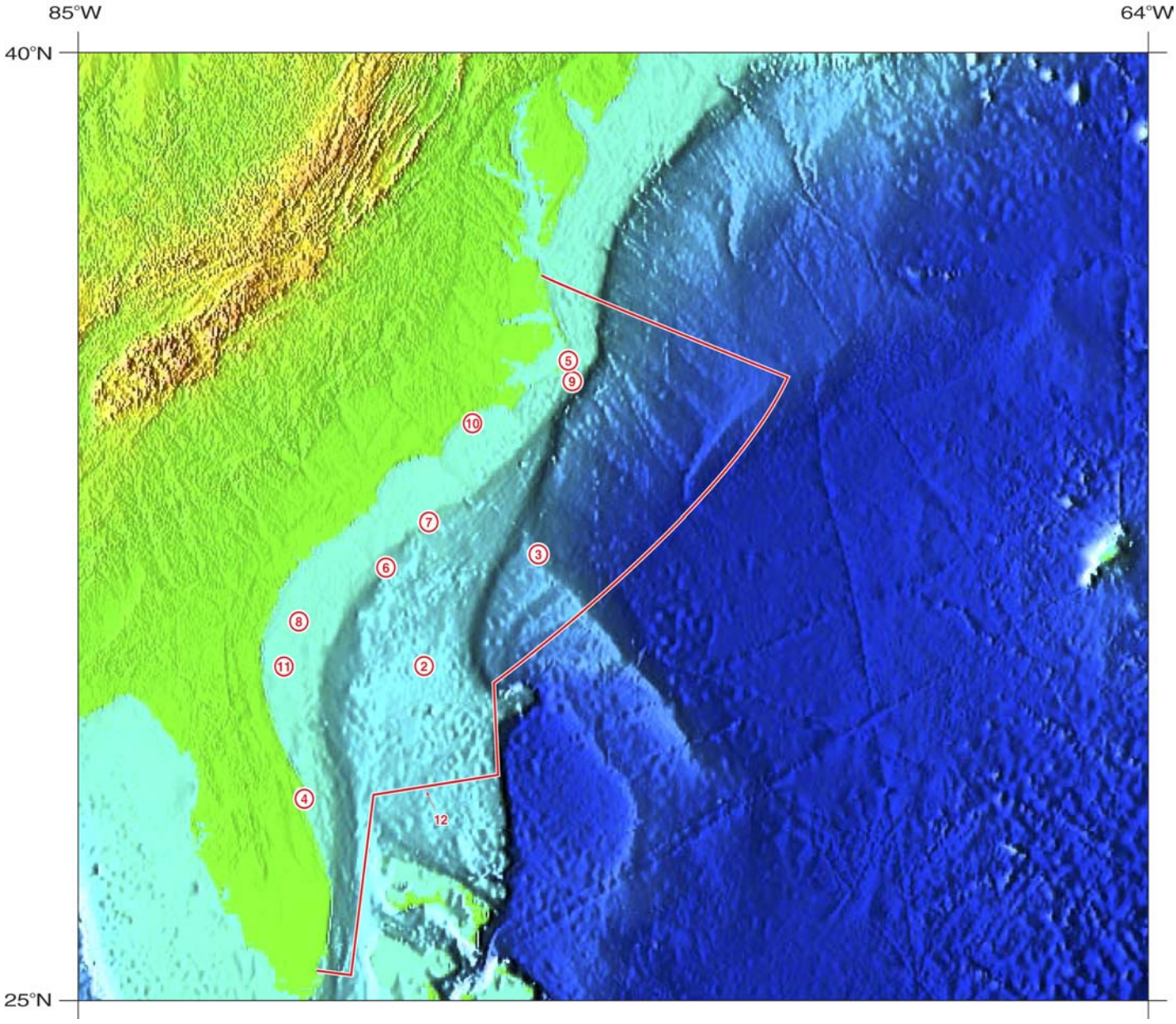

Figure 3-10. South Atlantic Region Exploration Targets of Interest

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